

C) REMARKS**As per claim 15**

The Examiner objected to claim 15 and claim 15 has been amended in accordance with the Examiner's suggestion.

As per claims 1 - 14

The Examiner rejected claims 1-14 under 35 U.S.C. § 103(a) as being unpatentable over Sasaki et al., U.S. Patent No. 6,411,672 in view of an article by R.C. Chu and R.E. Simons, "Application of Thermoelectrics to Cooling Electronics: Review and Prospects," Proceedings of the 18th International Conference on Thermoelectrics, pp. 272-279 (1999).

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability is the essence of impermissible hindsight. *In re Dembiczak*, 175 F.3d 994, 999 (Fed. Cir. 1999). In other words, the examiner must

show reasons that the skilled artisan, confronted with the same problems as the inventor and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed.”). For example, see *Teleflex v. KSR International*, 119 Fed. Appx. 282 (Fed. Cir. (Mich.) Jan. 6, 2005, No. 04-1152).

The applicants respectfully suggest that the references cited fail to provide either the motivation to combine the references or a reasonable expectation of success. In fact, the references cited by the Examiner actually teach away from the applicants' invention. For example, the Abstract of the article states, “[this] paper concludes by outlining the improvements needed if thermoelectrics are to compete effectively with vapor-compression based refrigeration systems in electronic cooling applications where high heat loads must be supported at low temperatures.” *Chu* at p. 270. The article continues, noting “[u]nfortunately, compared to vapor-compression refrigeration they are limited in the heat flux they can accommodate and suffer from a lower coefficient of performance (COP).” *Id.* at p. 273. The authors also analyze some existing IBM installations of thermoelectrics, stating “[u]nfortunately, in all of these instances the heat pumping capacity of the appropriate size thermoelectric modules was found to be inadequate to accomplish the task.” *Id.* at p. 275-276. Later, the authors mention the high cost of thermoelectric cooling devices, the added manufacturing process steps, additional power requirements and the reliability risks associated with thermoelectric cooling devices. *Id.* at p. 277. Most telling however, is that, in concluding, the authors state, “[u]ntil and unless improvements can be made to enhance heat pumping capability and COP, thermoelectrics will not be a serious candidate for high

performance electronic cooling application." *Id.* at p. 278.

Accordingly, not only does the Chu reference teach away from proposed combination, the combination fails to demonstrate a reasonable probability or expectation of success of the proposed combination. In summary, the Chu reference is primarily dedicated to exposing the shortcomings of thermoelectric cooling devices for electronics cooling applications.

As per claim 26

Claim 26 is cancelled.

As per Claims 15 – 25

The Examiner issued a obviousness-type double patenting rejection of claims 15 through 25 on the grounds that they are unpatentable over copending application no. 10/609,755 (the '755 reference), which has matured into U.S. Patent No. 6,931,092, in view of U.S. Patent No. 6,668,910 (the '910 reference).

The obviousness-type double patenting rejection is appropriate only if the claims of the two patents cross-read, meaning that the test is whether the subject matter of the claims of the patent sought to be invalidated would have been obvious from the subject matter of the claims of the other patent, and vice versa. *In re Dembiczak* at 1002. This obviousness is clearly lacking. By citing the heat sink of the '910 reference in view of the system and method for thermal management of CT circuitry of the '755 reference, and really as a further limitation of the '755 reference, does not expose the claims of the instant application to the double patenting rejection under the test that should be applied. The claims of the '755 reference do not contain the limitations of the instant application. By way of example, the '755 reference does not claim the use of air

plenums for accumulating air, the use of air plenums for directing cool air to the electronics, or for providing a thermoelectric cooler that is connected to the hot air plenum. Additionally, the relative arrangement of those elements, or of any arguably equivalent elements, is not claimed either. The applicants respectfully suggest that the Examiner has not established the existence of some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Instead, it appears as if the Examiner has viewed the disclosure with the benefit of the hindsight afforded by applicants' disclosure.

In point of fact, the '755 reference teaches away from the applicant's disclosure. After discussing other prior art air circulating systems that blow air over the data acquisition chips, the '755 application states "[t]his method of cooling may not have the capability to maintain the data acquisition chips in an isothermal condition and significant variation in temperature may be observed between the data acquisition chips." Col 1, lines 44-48 of the issued patent. Similarly, and again under the test to be applied above, there is no suggestion or motivation disclosed in the instant application to incorporate the subject matter of the '755 reference into that structure.

Conclusion

The claims, as presented describe a unique method for thermal management of CT electronics, not taught or suggested by the references cited. As such, allowance of all claims now presented is respectfully requested.

Respectfully submitted,
Joseph J. Lacey, et al., Applicants

By 

Joseph S. Heino
Reg. No. 31,524
DAVIS & KUELTHAU, s.c.
111 E. Kilbourn Ave., Ste. 1400
Milwaukee, WI 53202-1633
(414) 225-1452

Patrick M. Bergin
Reg. No. 54,994
DAVIS & KUELTHAU, s.c.
111 E. Kilbourn Ave., Ste. 1400
Milwaukee, WI 53202-1633
(414) 225-7563